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Chronic Cough in Swiss Bagpipe Player

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Key words: gastroesophageal reflux disease, esophageal pH monitoring, esophageal reflux, esophageal motility, anti-reflux therapy

Word count "introduction": 130

Word count "answer": 207

Abbreviations:

24h-MII-pH	24h-pH-multichannel intraluminal impedance testing
BAL	bronchoalveolar lavage
CT	computed tomography
GERD	gastroesophageal reflux disease
GI	gastrointestinal
HRM	high resolution esophageal manometry

Introduction:

A 34-year-old man presented to our gastrointestinal (GI) clinic with chronic cough. Coughing episodes exacerbated on days of bagpipe playing and the morning after. Methacholine testing revealed airway hyperreactivity. Allergic bronchopulmonary aspergillosis could be excluded; computed tomography (CT) scan of the chest was without pathological findings. Also bronchoscopy with bronchoalveolar lavage (BAL) and mucosal biopsy failed to reveal a pulmonary etiology of the cough. Minor findings in BAL were an elevated number of macrophages and bacteria representative of the oral flora. A trial with inhalative Budesonide and Formoterol and consecutively, 8 weeks of PPI treatment were started, however only lead to inadequate reduction of symptoms. The patient was then referred to us, where we performed high resolution esophageal manometry (HRM) and 24h-pH-multichannel intraluminal impedance testing (24h-MII-pH) after unremarkable upper endoscopy.

Answer:

During bagpipe playing abdominal/esophageal pressures increased simultaneously to 80-90mmHg *Figure 1 above and Video*. 24h-MII-pH demonstrated gastroesophageal reflux disease (GERD, time of acid exposure, distal esophagus: 7.2% [norm <4.2%], DeMeester 24.1 [<14.7]). Testing was also performed during 10min bagpipe playing *Figure 1 below*: Two reflux episodes were noticed, followed by elevated acid exposure time of the distal esophagus. Instead of choosing acid-suppressive therapy, the patient decided to modify his bagpipe (replacement of internal bag with smaller bag, changing of reeds to lower resistance).

Upon follow-up appointment seven months later the patient reported resolution of cough. During repeat HRM while bagpipe playing abdominal/esophageal pressures were reduced by 30% (probably also by reduction of strain on the crural diaphragm) and criteria for GERD were no longer fulfilled during 24h-MII-pH (acid exposure: 2.0%, DeMeester 6.0) *Figure 2*. In fact, no episodes of reflux occurred in the 10min bagpipe playing period or in the first hour thereafter on 24h-MII-pH.

This case demonstrates a patient with chronic cough due to GERD triggered by bagpipe playing. Subjective and objective findings were resolved only by bagpipe reconstruction without acid-suppressive medication or additional lifestyle changes. A gastrointestinal cause of symptoms should be considered in patients playing a wind instrument with inconclusive pulmonary work-up for cough.

Conflicts of interest:

Valeria Schindler: support from Swiss National Foundation (SNF, grant funding) for research but no financial relationships or activities with any organizations that might have an interest in the submitted work.

Christoph Gubler: none

Alexander Turk: none

Anton S. Becker: none

Daniel Pohl: none

Figure 1: High-resolution manometry (HRM) and 24-hour multichannel intraluminal impedance-pH (24h-MII-pH) testing while bagpipe playing before reconstruction.

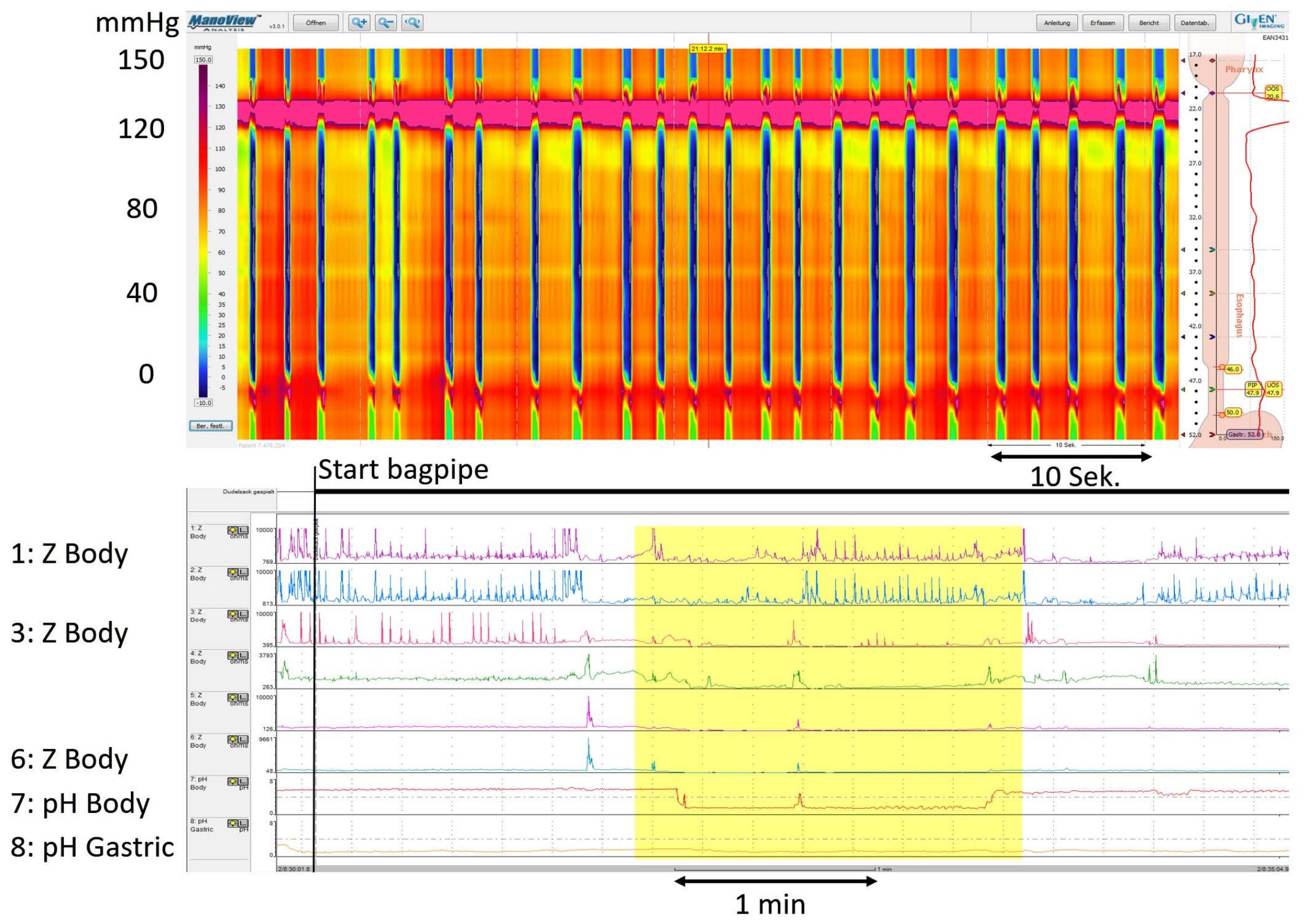
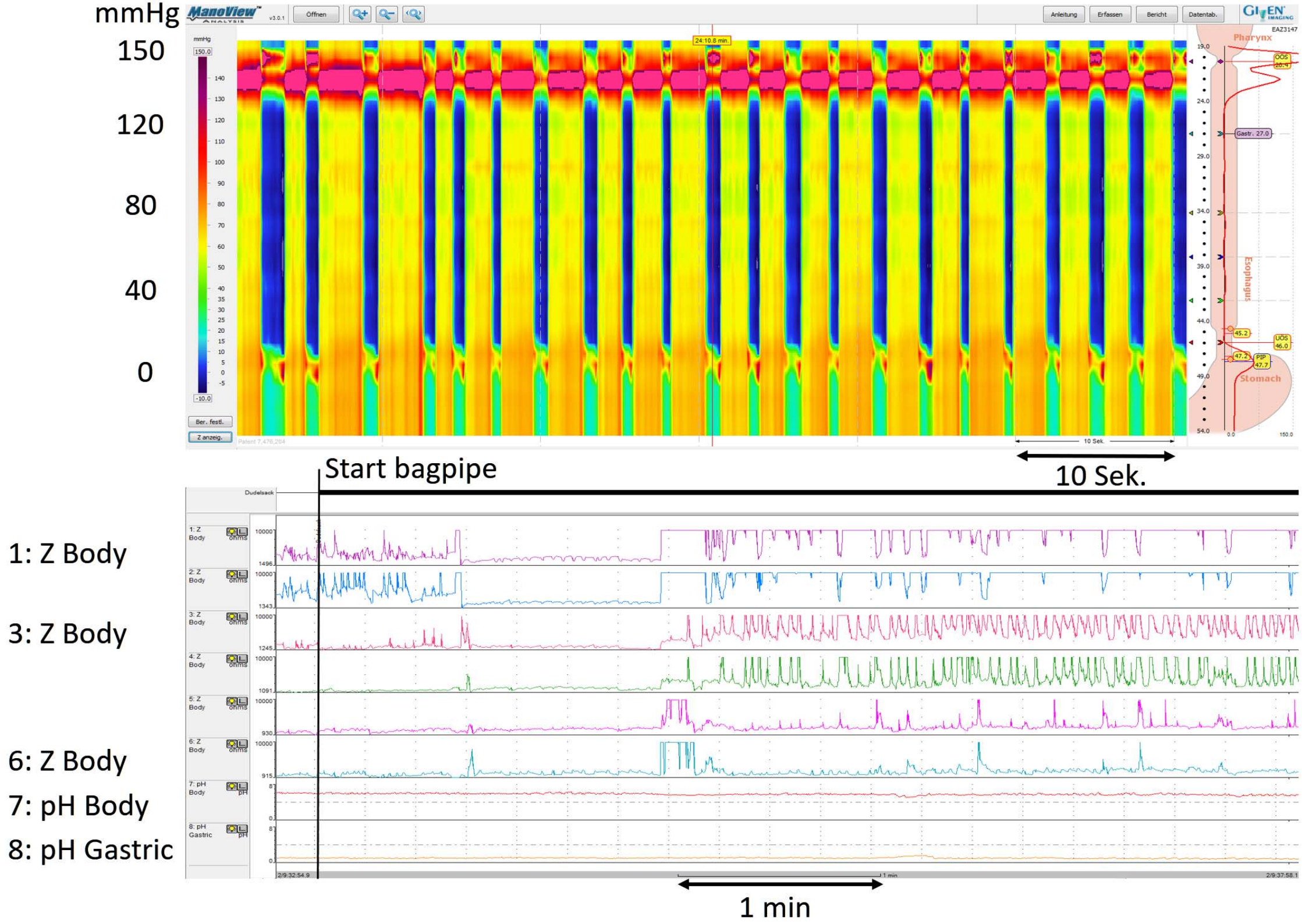

mmHg
150
120
80
40
0
ManoView
Öffnen
Anleitung
Erfassen
Bericht
Datentab.
Pharynx
Esophagus
10 Sek.
Start bagpipe
10 Sek.
1: Z Body
3: Z Body
6: Z Body
7: pH Body
8: pH Gastric
1 min

Figure 2: High-resolution manometry (HRM) and 24-hour multichannel intraluminal impedance-pH (24h-MII-pH) testing while bagpipe playing after reconstruction.


mmHg
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